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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/783,677

02/20/2004

Dennis Joseph Denen

1774

167

7590

07/14/2005

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EXAMINER

DOLE, TIMOTHY J

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/783,677

Applicant(s)

DENEN ET AL.

Examiner

Timothy J. Dole

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 29-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-6 and 8-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, 20-23 and 25-28 of copending Application No. 10/938927. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the current application are broader in scope than the copending application. The copending application recites "a

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comparator adapted to receive the detection signal and to actuate the motor in response thereto”, while the current application recites “a comparator receiving the detection signal and being adapted to generate an output signal in response thereto”. Since the copending application actuates a motor, an output signal would inherently have to be generated. Therefore, the claims are not patentably distinct because if allowed, would be covered by any patent granted on the copending application since the referenced copending application is claiming common subject matter.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-5, 8, 10-12 and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Teodorescu (US 5,986,549).

Referring to claims 1, 8 and 12, Teodorescu discloses a proximity detection circuit and method, comprising: an antenna (fig. 1 (16)); an oscillator circuit (fig. 1 (12)) adapted to provide charge to the antenna (column 2, lines 44-47); an operational amplifier (fig. 1 (24)) being operated as a unity gain follower and receiving an antenna signal from the antenna, the antenna signal being representative of an external capacitive load on the

antenna (column 2, lines 55-62); a detector circuit (fig. 1 (26)) receiving the antenna signal via the operational amplifier and being adapted to output a detection signal in response to changes in the antenna signal (column 2, lines 60-64); and a comparator (fig. 1 (34)) receiving the detection signal and being adapted to generate an output signal in response thereto (column 3, lines 23-33).

Referring to claims 3 and 15, Teodorescu discloses the circuit and method as claimed wherein the detector circuit comprises a voltage peak detector (column 2, lines 60-64).

Referring to claims 4, 10 and 17, Teodorescu discloses the circuit and method as claimed, further comprising a low-pass filter (fig. 1 (28)) electrically coupled between the detector circuit and the comparator (column 2, line 66 – column 3, line 14).

Referring to claims 5, 11 and 18, Teodorescu discloses the circuit and method as claimed, further comprising an amplifier (fig. 1 (30)) electrically coupled between the detector circuit and the comparator (fig. 1).

Referring to claim 14, Teodorescu discloses the method as claimed wherein charging the antenna with the oscillating signal includes charging the antenna with an oscillating asymmetric signal (column 4, lines 17-28).

Referring to claim 16, Teodorescu discloses the method as claimed, further comprising preventing oscillation by including a current limiting resistor at an output terminal of the operational amplifier (fig. 2).

Referring to claim 19, Teodorescu discloses the method as claimed, further comprising filtering out changes in DC voltage levels from the detection signal while passing transient portions thereof (column 3, lines 1-14).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 9, 20 and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teodorescu in view of Philipp (US 5,730,165).

Referring to claims 2 and 9, Teodorescu discloses the circuit as claimed except for at least one static protection circuit having at least one first diode conducting away from ground and at least one second diode conducting toward a supply voltage.

Philipp discloses a proximity detector comprising at least one static protection circuit (column 8, lines 60-62) having at least one first diode conducting away from ground (fig. 3 (54)) and at least one second diode conducting toward a supply voltage (fig. 3 (52)).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the static protection circuit of Philipp into the circuit of

Teodorescu for the purpose of protecting the circuit against static whereby making it more durable.

Referring to claim 20, Teodorescu discloses a method of detecting capacitance changes comprising: charging an antenna with an oscillating signal (column 2, lines 44-47); buffering an impedance mismatch between the antenna and the detector circuit with an operational amplifier operated as a unity gain follower (column 2, lines 55-62); detecting changes in an antenna signal with a detector circuit, the antenna signal being representative of an external capacitive load on the antenna (column 2, lines 47-59); generating a detection signal from the detector circuit in response to changes in the antenna signal (column 2, lines 60-64); and generating an output signal in response to detection of changes in the detection signal (column 3, lines 23-33).

Teodorescu does not disclose providing protection from static utilizing at least one static protection circuit comprising at least one first diode adapted to conduct away from ground and at least one second diode adapted to conduct toward a supply voltage.

Philipp discloses a proximity detector comprising at least one static protection circuit (column 8, lines 60-62) having at least one first diode adapted to conduct away from ground (fig. 3 (54)) and at least one second diode adapted to conduct toward a supply voltage (fig. 3 (52)).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the static protection circuit of Philipp into the circuit of Teodorescu for the same purpose as given in claim 2, above.

Referring to claim 22, Teodorescu discloses the method as claimed wherein charging the antenna with the oscillating signal includes charging the antenna with an oscillating asymmetric signal (column 4, lines 17-28).

Referring to claim 23, Teodorescu discloses the method as claimed wherein detecting changes in the antenna signal includes detecting a peak voltage (column 2, lines 60-64).

Referring to claim 24, Teodorescu discloses the method as claimed, further comprising preventing oscillation by including a current limiting resistor at an output terminal of an operational amplifier (fig. 2).

Referring to claim 25, Teodorescu discloses the method as claimed, further comprising filtering out alternating current interference frequencies from the detection signal (column 2, line 66 – column 3, line 14).

Referring to claim 26, Teodorescu discloses the method as claimed, further comprising amplifying the detection signal (column 2, line 66 – column 3, line 1).

Referring to claim 27, Teodorescu discloses the method as claimed, further comprising filtering out changes in DC voltage levels from the detection signal while passing transient portions thereof (column 3, lines 1-14).

7. Claims 6, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teodorescu in view of Towne et.al. (US 6,297,627)

Referring to claims 6 and 13, Teodorescu discloses the circuit and method as claimed except wherein the comparator is adapted to generate the output signal when the detection signal has a predetermined voltage level as compared to a reference voltage.

Towne et al. discloses a proximity detector wherein the comparator (fig. 34 (360)) is adapted to generate the output signal (fig. 34 (Vout)) when the detection signal has a predetermined voltage level as compared to a reference voltage (column 22, lines 44-49).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the reference voltage of Towne et al. into the circuit of Teodorescu for the purpose of providing a known value with which the detected signal is to be compared.

Referring to claim 7, Teodorescu discloses the circuit as claimed except for a switch electrically coupled to the comparator, the switch being adapted to adjust the reference voltage.

Towne et al. discloses a switch electrically coupled to the comparator, the switch being adapted to adjust the reference voltage (column 30, lines 9-19).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the reference voltage of Towne et al. into the circuit of Teodorescu for the same purpose as given in claim 6, above.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Teodorescu and Philipp as applied to claim 20 above, and further in view of Towne et al.

Referring to claim 21, Teodorescu as modified discloses the method as claimed except wherein generating the output signal includes comparing the detection signal to a reference voltage.

Towne et al. discloses a proximity detector wherein generating the output signal includes comparing the detection signal to a reference voltage (column 22, lines 44-49).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the reference voltage of Towne et al. into the circuit of Teodorescu for the same purpose as given in claim 6, above.

### *New Claims*

9. Claims 29-31, 34-37, 40 and 43-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Teodorescu.

Referring to claims 29, 35 and 43, Teodorescu discloses the circuit and method as claimed wherein the detector circuit is adapted to output the detection signal in response to changes in peaks of the antenna signal over time (column 2, lines 60-64).

Referring to claims 30, 36 and 44, Teodorescu discloses the circuit and method as claimed wherein the antenna forms one conducting side of a capacitor (fig. 1). It should be noted that the antenna (16) in fig. 1 forms one side of a capacitor, with the other side being formed by the object (22). The capacitor is shown by dotted lines between the antenna and the object.

Referring to claims 31, 37 and 45, Teodorescu discloses the circuit and method as claimed wherein the antenna comprises a single wire antenna (fig. 1 (16)).

Referring to claims 34, 40 and 46, Teodorescu discloses the circuit and method as claimed wherein the antenna is coupled in series with one or more resistors (fig. 1 (14)), and the operational amplifier is in electronic communication with a conductive element disposed between the antenna and the one or more resistors (fig. 1).

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10. Claims 32, 33, 38, 39, 41 and 42 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Teodorescu.

Referring to claims 32, 38 and 41, Teodorescu discloses the circuit and method as claimed except wherein the antenna signal is an exponential waveform signal.

It would have been obvious to one skilled in the art at the time of the invention to refer to the antenna signal of Teodorescu as an exponential waveform signal since the capacitor (18) and the capacitance due to the detected object would charge and discharge according to the oscillator, which would inherently cause the antenna signal to be exponential.

Referring to claims 33, 39 and 42, Teodorescu discloses the circuit and method as claimed except wherein the oscillator is adapted to provide charge to the antenna in the form of an oscillating signal and the exponential waveform signal is representative of the integral of the oscillating signal.

It would have been obvious to one skilled in the art at the time of the invention to claim the oscillator of Teodorescu is adapted to provide charge to the antenna in the form of an oscillating signal and the exponential waveform signal is representative of the integral of the oscillating signal for the same reason as given in claim 32, above.

11. Claims 47-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teodorescu in view of Philipp.

Referring to claim 47, Teodorescu discloses the method as claimed except wherein charging the antenna with the oscillating signal comprises generating an exponential waveform signal.

It would have been obvious to one skilled in the art at the time of the invention to refer to the antenna signal of Teodorescu as an exponential waveform signal since the capacitor (18) and the capacitance due to the detected object would charge and discharge according to the oscillator, which would inherently cause the antenna signal to be exponential.

Referring to claim 48, Teodorescu discloses the method as claimed except wherein charging the antenna with the oscillating signal comprises integrating the oscillating signal with the antenna to generate the exponential waveform signal.

It would have been obvious to one skilled in the art at the time of the invention to claim the oscillator of Teodorescu is adapted to provide charge to the antenna in the form of an oscillating signal and the exponential waveform signal is representative of the integral of the oscillating signal for the same reason as given in claim 47, above.

Referring to claim 49, Teodorescu discloses the method as claimed wherein generating the detection signal comprises generating the detection signal in response to changes in peaks of the antenna signal over time (column 2, lines 60-64).

Referring to claim 50, Teodorescu discloses the method as claimed wherein the antenna forms one conducting side of a capacitor (fig. 1). It should be noted that the antenna (16) in fig. 1 forms one side of a capacitor, with the other side being formed by the object (22). The capacitor is shown by dotted lines between the antenna and the object.

Referring to claim 51, Teodorescu discloses the method as claimed wherein the antenna comprises a single wire antenna (fig. 1 (16)).

Referring to claim 52, Teodorescu discloses the method as claimed wherein the antenna is coupled in series with one or more resistors (fig. 1 (14)), and detecting changes in the antenna signal comprises placing the detector circuit in electronic communication with a conductive element disposed between the antenna and the one or more resistors (fig. 1).

### *Response to Arguments*

12. Applicant's arguments filed May 11, 2005 have been fully considered but they are not persuasive.

13. In response to Applicants argument with respect to claims 1, 8, 12 and 20, that the Teodorescu reference does not disclose that the operational amplifier (24) is operated as a unity gain follower, it should be noted that amplifier (24) is referred to as a buffer amplifier, which simply conveys the signal from the sensor to the detector (column 2, lines 60-64). Since the buffer amplifier only conveys the signal and does not amplify it, it may be referred to as a unity gain follower.

14. In response to Applicants argument with respect to claims 1, 8, 12 and 20, that the Teodorescu reference does not disclose the antenna signal is representative of an external capacitive load on the antenna, it should be noted that in figure 1 of Teodorescu shows these limitations as discussed in the above rejection. The object (22) causes an external capacitive load, shown by the dotted line capacitors, between the object (22) and the sensor element (16) and the antenna signal received by the buffer amplifier (24) is the magnitude of the signal across the sensor (20), which is representative of the detected external capacitive load.

***Final Rejection***

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

***Conclusion***

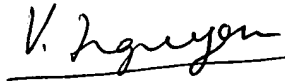
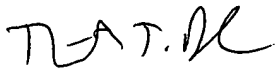
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Dole whose telephone number is (571) 272-2229. The examiner can normally be reached on Mon. thru Fri. from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJD



**VINCENT Q. NGUYEN**  
**PRIMARY EXAMINER**